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# Southeast Colorado River Basin

## Industrial Water

### 18.1 INTRODUCTION

This section of the Southeast Colorado River Basin Plan provides a brief accounting of industrial development in Grand and San Juan counties in addition to presenting information and data concerning current industrial water use. Water is used for industrial purposes such as mining and mineral extraction, processing and ready-mix concrete. There are no hydroelectric power production plants in the area and no sites have been recently evaluated.

### 18.2 BACKGROUND

The history of large scale industry in the basin parallels the boom and bust eras of various mining operations over more than one hundred years. The initial growth in the local mining industry was directly related to the discovery of gold, silver and copper. In later years, activity was centered on the development of relatively large petroleum and uranium deposits at various sites throughout the basin.

Shortly after the arrival of Mormon settlers and miscellaneous entrepreneurs in the 1860s and 1870s, small amounts of gold and silver were discovered along the banks of both the San Juan and Colorado rivers. Although the initial discoveries were small, gold fever attracted thousands of prospectors from throughout the western territories and California by the early 1890s. However, by the turn of century, the hope of finding the big strike dissipated as no significant gold or silver deposits were ever discovered.

After the turn of the century, low grade deposits of copper were discovered in White

Canyon and Lisbon Valley. The deposits were initially assumed to be of sufficient size to warrant the construction of the Big Indian processing plant near La Sal. This required significant volumes of water and resulted in the construction of a 6.5-mile water line to the plant site at La Sal from nearby mountain streams and springs.

However, mining completely shut down by the late 1930s due to a decline in copper prices.

Oil was discovered in 1882 when gold and silver prospectors noticed brownish-black liquid floating on the lower San Juan River. By the turn of century, oil exploration reached an all-time high. By 1909, twenty-five wells had been drilled with a success rate of over 80 percent.

Although the demand for uranium did not reach significant levels until the completion of World War II, local uranium deposits were actively mined as early as the late 1890s. Prior to the development of nuclear weapons in the 1940s, uranium was used in the manufacture of a number of domestic products including paint pigments, ceramics, steel alloys, luminescent surfaces and as a treatment for cancer. This early demand was the main driving force in the

*Industrial water use is a small but important part of the total resource. It is also subject to more variability, fluctuating with market*

search for uranium. Of all the mining ventures in the basin, vanadium, uranium and potash were the most lucrative and have had the biggest impact.

An \$8 million uranium processing plant was built near Moab in 1955, making this community the “Uranium Capitol of the World.” This boom put a high demand on all the resources, including water. Since then, this mill has been closed leaving a large tailings pile that is contaminating the groundwater and the nearby Colorado River. Efforts to remedy the situation over the years have been fruitless until recently. There is still discussions on whether to cap the tailings pile in place or whether to remove it to another location where it will not contaminate the groundwater. The latest proposal is to fund the pile removal from a Congressional appropriation and oil reserve revenues from lands restored to the Northern Ute Indians. A detailed discussion is given in Section 12.4.2.

A uranium processing mill was also constructed near Monticello because of the high volume of ore being mined in the area. During this boom period, processing of uranium ore jumped from 700 tons to 17,800 tons annually. This mill has been removed and the site has been cleaned up under the Environmental Protection Agency’s Superfund Program.

During the 1980s, Energy Fuels constructed a processing plant on White Mesa near Blanding. Amid considerable controversy, the plant, now owned by International Uranium Corporation, is still in operation. The plant recently started alternate feed operations (reprocessing of uranium tailings).

Although uranium mining helped develop the local economy, it also came with a significant cost. Most of the mining operations have been abandoned leaving large stock piles of spent uranium ore tailings that pose a threat to underlying groundwater aquifers and nearby rivers and streams. There is concern by state and federal water quality agencies that over an extended period of time, contaminants will leach to existing natural systems. As a result, the

Division of Oil Gas and Mining is actively managing the long term cleanup of a number of the most sensitive of these sites.

### 18.3 INDUSTRIAL WATER USE

Over the years, and primarily as secondary developments to mining, a number of other industries have grown in the basin. These businesses generally include metal finishing plants, lumber processing mills, oil refineries, various construction and rock product operations, and meat processing plants. Water use by these industries varies to a significant degree by business or plant type and operation. A recent inventory of municipal and industrial water use in the basin gathered data for 1996. The estimated self-supplied water use by industrial businesses was 2,030 acre-feet per year. In addition, 30 acre-feet of culinary water from public community systems was used for industrial purposes. There are plans to start a mining operation in the Lisbon Valley area soon. This operation will require use of groundwater. Self-supplied industrial water use is projected to reach 4,560 acre-feet by 2020 and 6,720 acre-feet by 2050. Table 18-1 shows the current and projected industrial water use. □



White Mesa Mill

Table 18-1 INDUSTRIAL WATER USE								
Year/Category	Grand County (acre-feet)		San Juan County (acre-feet)		Total (acre-feet)		Depletion	Depletion
	Diversion	Depletion	Diversion	Depletion	Diversion	Depletion		
<b>1996</b>								
Culinary Industrial	0	0	30	25	30	25		25
Self-Supplied Industrial	940	820	1,090	950	2,030	1,770		
<b>Total</b>	<b>940</b>	<b>820</b>	<b>1,120</b>	<b>975</b>	<b>2,060</b>	<b>1,795</b>		
<b>2020</b>								
Culinary Industrial	0	0	40	35	40	35		35
Self-Supplied Industrial	1,050	920	3,510	3,050	4,560	3,970		
<b>Total</b>	<b>1,050</b>	<b>920</b>	<b>3,550</b>	<b>3,085</b>	<b>4,600</b>	<b>4,005</b>		
<b>2050</b>								
Culinary Industrial	0	0	60	50	60	50		50
Self-Supplied Industrial	1,210	1,140	5,510	4,710	6,720	5,850		
<b>Total</b>	<b>1,210</b>	<b>1,140</b>	<b>5,570</b>	<b>4,760</b>	<b>6,780</b>	<b>5,900</b>		